SOME APPLICATIONS OF AMATEUR PHOTOGRAPHY.

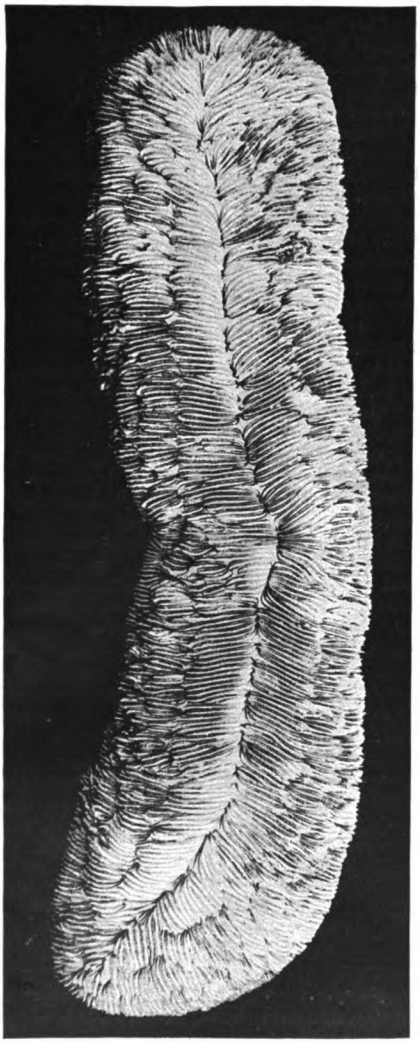
By H. H. Ballard.

ALTHOUGH photography has now been understood for many years, it has only fairly entered upon its term of service. Perhaps its chief importance may continue to lie in the reproduction of the faces of our friends, but it is rapidly coming to much wider fields of usefulness. The manufacture of cheap apparatus has done much to hasten this extension of photographic possibilities.

All boys and girls can now take their own pictures, and each finds some new object on which to try the powers of the lens.

Jack must have photographs of his pony, at

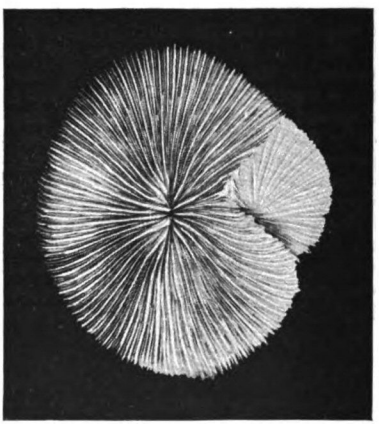
rest, and also at full gallop so he can see how the horse moves its legs. Jill must have her favorite kitten pictured in all its graceful attitudes. Then



the father of Jack and Jill, who loves all animals, wild and tame, does not see why he should not borrow the camera and try a flying shot at a rising heron or a startled deer; and their mother, whose tastes seek gratification in her garden, finds that she can preserve the graceful forms of roses and lilies in unwilting freshness by the same magician's glass.

One great advantage of the camera for the lover of nature is that the youthful and untrained student of nature is enabled by its aid to secure an exact reproduction of whatever interesting plant, or insect, or crystal he may discover — a representation more exact than the most skillful artist could produce without such help.

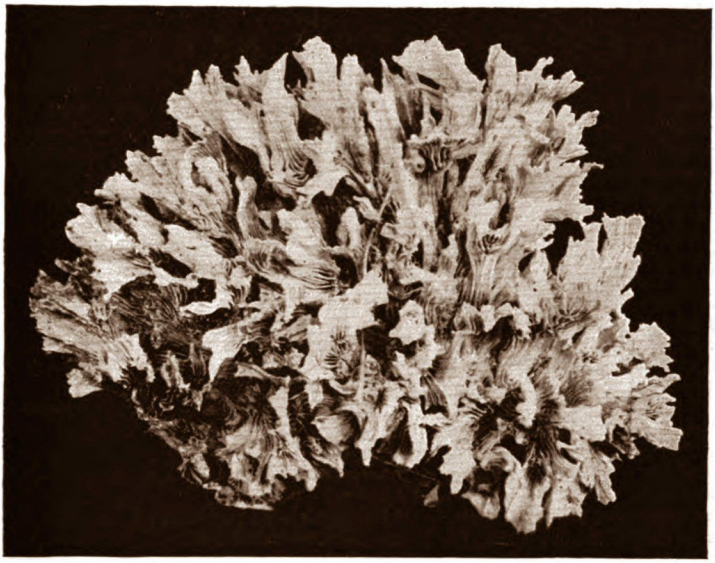
Suppose that you were visiting the sea-shore, and should find an exquisite shell or branch of coral. Would it not afford you unusual pleasure to be able to preserve in light and shade each graceful curve and delicate tone of the one, and the intricate structure,— nay, the very texture and roughness of the other? See how the camera,



in the hands of a young friend of mine, has brought one or two such specimens before us! So perfect is the reproduction that it almost seems that we can handle them!

The young astronomer may attach the camera to his telescope and make the moon herself draw her own picture for him. The young microscopist can so combine microscope and camera as to produce clear photographs of objects too small to be seen by the unaided eye. More wonderful still, the plate is so sensitive that it catches and preserves impressions too faint for the unaided eye. The astronomer finds more stars on his negative than were visible in the sky; the physician perceives symptoms in the photograph which he failed to discern from the skin of his patient; and

the lens arrests and pictures the whirring wing of the insect, the flying bullet, the very flash of lightning, showing, in the latter, thousands of delicate forkings of light, which escape the sight blinded by the excessive light. A writer in the *West American Scientist* says:



"A striking illustration of the value of the camera to astronomy is furnished by the recent discovery of a new nebula near the star 'Maia' in the Pleiades. Until photographed at the Paris Observatory, this nebula had never been seen by the best glasses, although it has since been detected with the great telescope of the Pulkova Observatory. The Emperor of Brazil now announces his determination to coöperate, at the Rio de Janeiro Observatory, in the general project of photographing the entire heavens, already begun at Paris with such unexpected success."

Before closing this paper, I wish to suggest to the ingenious young men who read ST. NICHOLAS, and who are amateur photographers, a new device, which they can easily make and apply; it will, I think, furnish many interesting results. It may be called an "automatic shutter." Let a disk with regular openings be caused to revolve by clock-work in such a way as, at stated intervals (say, of ten minutes), to expose the sensitive paper for a fraction of a second. The sensitive paper should be on rollers, as it is now in some cameras, and these rollers also should be operated by the clock. An apparatus constructed on this principle could be used in many ways; only a few need be mentioned. Let the instrument be set in front of a rose-bush, and carefully focussed upon a rose. Set the clock-work in motion and leave the camera to itself during a long period. Upon examining the paper, by and by, we should find a series of instantaneous photographs, taken at intervals of ten minutes, showing whatever insect visitors may have been attracted to the flower.

Set the camera in range for a wild bird's nest, and you should secure a series of pictures of bird-life, as it flows on undisturbed by the presence of man. Who knows what pretty domestic scenes of motherly care and fatherly providence might be revealed? Many woodland and meadow creatures are so shy as to be observed with difficulty. Would not this detective-camera give us the graceful attitudes of the squirrel, the rabbit, and the woodchuck in their free gambolings or daily labors? Set the clock to strike off pictures at longer intervals, and you will secure a record of the sprouting of seeds, the growth of plants, possibly even the development of embryonic life.

While our young inventors are considering the practicability of making an instrument that will "wink" us pictures of its own accord, let me hint to such owners of the lens as may be by the sea-side, that a little care and patience will enable them to secure what, so far as I know, has never yet been seen — a photograph of a tide-pool, wherein may be seen the waving tentacles of the sea-anemone, the curling arms of the starfish, the plumes of the barnacle, and the flash of the minnow, together with the exquisite forms of sea-weed and sunken rock; all in their natural condition, bathed by crystal water, and alive under the golden sun.